

REMARKS

Claims 10-17 and 19 are presented for further examination.

Rejections under 35 U.S.C. §102

After previously having allowed claims 10-17 and 19, the Office withdrew the allowability of the claims. In particular, the Office now rejects claims 10 and 19 as anticipated by U.S. Patent No. 4,873,564 (Beasom), alleging that Beasom is a “newly discovered reference” (*see* Office Action, page 1, par. 1).

First, applicant notes that Beasom is not a “newly” discovered reference and, in fact, previously was cited by the Office against claim 10 (*see* Office action of January 22, 2010, page 6). Furthermore, applicant addressed the prior rejection of claim 10 as allegedly anticipated by Beasom in a response dated May 18, 2010.

Second, to anticipate a claim under section 102, a single prior art reference must disclose *each and every* limitation of the claim. MPEP §2131. As explained below, that is not the case here.

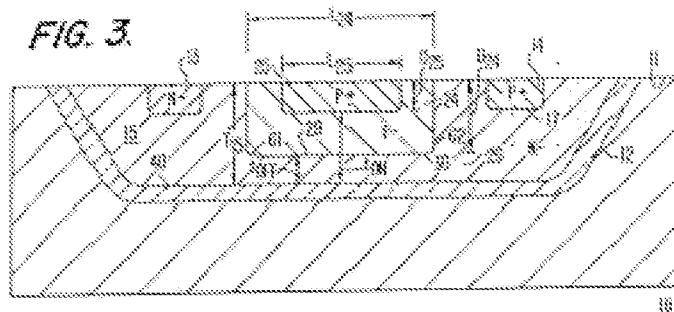
Claim 10 recites that the first conductivity type semiconductor layer and the buffer layer have a substantially flat *cross-sectional* shape. An example is illustrated in FIG. 1 of the present application, which shows a first conductivity type semiconductor layer 1 and a buffer layer 3 having a substantially flat cross-sectional shape. This can provide an improvement in some implementations because the thickness of the buffer layer and the impurity concentration can be set at desired values through epitaxial growth of the buffer layer. Furthermore, in some implementations, various layers, including the buffer layer, can be formed by a continuous process such that the overall processing time required can be reduced. This, in turn, can help reduce fabrication costs.

Beasom discloses a FET device. The Office alleges (at page 3 of the Action) that P-region 24 in FIGS. 3 and 4 corresponds to the claimed “buffer layer,” and that P+ region 25

corresponds to the claimed “second conductivity type doped region.” In contrast to the substantially flat cross-sectional shape recited in claim 10, Beasom discloses that the P- region 24 has a U-shaped cross-section (*see, e.g.*, FIG. 3). Therefore, the P- region 24 does not correspond to the claimed “buffer layer.” At least for this reason, Beasom does not anticipate claim 10.

Claim 10 is patentably distinguishable from Beasom for additional reasons as well. For example, claim 10 is amended to clarify that the buffer layer is “buried entirely within” the first conductivity type semiconductor layer and is disposed over an “entirety” of a region of the first conductivity type semiconductor layer in plan view. An example is illustrated in FIG. 1 which shows the buffer layer 3 buried entirely within the first conductivity type semiconductor layer 1 and disposed over an entirety of a region of the first conductivity type semiconductor layer 1 in plan view.

In contrast, Beasom discloses that the P- region 24 (which allegedly corresponds to the claimed “buffer layer”) extends to the same surface 11 of substrate 10 as the N- island region 15 (which allegedly corresponds to the claimed “first conductivity type semiconductor layer”). *See* FIG. 3, reproduced below. P- region 24 is not “buried entirely within” the N- island region 15. Therefore, Beasom fails to disclose a buffer layer that is “buried entirely within [a] first conductivity type semiconductor layer,” as recited in claim 10. Beasom thus does not anticipate claim 10 for this reason as well.



In addition, it is clear that Beasom's P- region 24 is not disposed over an “entirety” of N-island region 15 (which allegedly corresponds to the claimed “first conductivity type

semiconductor layer”) in plan view. Instead, as seen from FIG. 3 as well as FIG. 4 (reproduced below), P- region 24 is disposed over only a small part of N- island region 15 in plan view. Beasom also does not anticipate claim 10 for this additional reason.

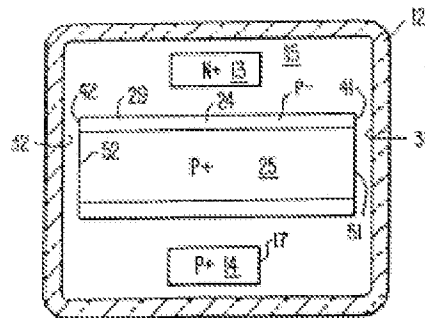


FIG. 4

In view of the foregoing remarks, the rejection of claim 10, as well as dependent claims 19, should be withdrawn.

Rejections under 35 U.S.C. §103

The Office rejected claims 11-17 as obvious from Beasom in view of one or more of the following references: U.S. Patent Publication No. 2003/0075719 (Sriram), U.S. Patent No. 4,807,011 (Nonaka), U.S. Patent Publication No. 2002/0139992 (Kumar), and U.S. Patent No. 6,841,812 (Zhao)

Reconsideration is requested.

First, none of the additional references disclose the features of claim 10 missing from Beasom. Therefore, even if Beasom somehow were modified in view of one or more of the other references, that would not have resulted in, or rendered obvious, the subject matter of the pending claims.

Second, it would not have made sense to modify Beasom so as to obtain the subject matter of claim 10 and its dependent claims. For example, Beasom states the P- region 24 is formed by a diffusion process, which results in a Gaussian impurity distribution profile (col. 7, lines 30-36). In contrast, such techniques cannot be used to form the buffer layer of claim 10. For example, using a diffusion process would not result in the P- region 24 being buried within the N- island region 15. Furthermore, if a diffusion process were used such the P- region 24 were disposed over an entirety of N- island region 15 in plan view, it would render the Beasom's device inoperable because the P- region 24 would then extend across the entire upper surface of the N- island region 15.

In view of the foregoing remarks, the rejections of claims 11-17 should be withdrawn as well.

Conclusion

It is believed that all of the pending claims have been addressed. However, the absence of a reply to a specific rejection, issue or comment does not signify agreement with or concession of that rejection, issue or comment. In addition, because the arguments made above may not be exhaustive, there may be reasons for patentability of any or all pending claims (or other claims) that have not been expressed. Finally, nothing in this paper should be construed as an intent to concede any issue with regard to any claim, except as specifically stated in this paper, and the amendment of any claim does not necessarily signify concession of unpatentability of the claim prior to its amendment.

Please apply any necessary charges or credits to Deposit Account 06-1050, referencing the above attorney docket number.

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Serial No. : 10/583,501
Filed : June 19, 2006
Page : 9 of 9

Attorney's Docket No.: 12967-0007US1 / 905350-02

Respectfully submitted,

Date: February 21, 2011

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